

CLAIMS

What is claimed is:

1. An electrically conductive shaped article comprising a liquid crystal polymer, poly(styrene-co-maleic anhydride) and conductive fillers.
- 5 2. The shaped article of claim 1, comprising:
 - (a) from about 0.5 wt% to about 40 wt%, preferably from about 1 wt% to about 30 wt%, most preferably from about 5 wt% to about 20 wt%, of the liquid crystal polymer;
 - (b) from about 0.5 wt% to about 40 wt%, preferably from about 1 wt% to about 30 wt%, most preferably from about 5 wt% to about 20 wt% of the poly(styrene-co-maleic anhydride); and
 - 10 (c) from about 20 wt% to about 99 wt%, preferably from about 60 wt% to about 98 wt%, most preferably from about 70 wt% to about 90 wt% of the conductive filler.
- 15 3. The shaped article of claim 2, wherein the liquid crystal polymer is liquid crystalline polyester.
4. The shaped article of claim 2, wherein the conductive filler is graphite filler or carbon nanotubes.
5. The shaped article of claim 4, wherein the graphite filler is selected 20 from the group consisting of graphite fibre filler, graphite powder filler and mixtures thereof.
6. The shaped article of claim 2, wherein the poly(styrene-co-maleic anhydride) is poly(styrene-co-maleic anhydride).
7. The shaped article of claim 2, wherein the poly(styrene-co-maleic 25 anhydride) contains from about 1% to about 75%, preferably from about 1% to 50%, most preferably from about 1% to about 32%, maleic anhydride moieties.
8. A conductive flow field separator plate comprising a liquid crystal polymer, poly(styrene-co-maleic anhydride) and conductive filler.
- 30 9. The conductive flow field separator plate of claim 8, comprising:
 - (a) from about 0.5 wt% to about 40 wt%, preferably from about 1 wt% to about 30 wt%, most preferably from about 5 wt% to about 20 wt%, of the liquid crystal polymer;
 - (b) from about 0.5 wt% to about 40 wt%, preferably from about 1 wt% to about 30 wt%, most preferably from about 5 wt% to about 20 wt% of the poly(styrene-co-maleic anhydride); and

- (c) from about 20 wt% to about 99 wt%, preferably from about 60 wt% to about 98 wt%, most preferably from about 70 wt% to about 90 wt% of the conductive filler.
- 10. The conductive flow field separator plate of claim 9, wherein the liquid crystal polymer is liquid crystalline polyester.
- 5 11. The conductive flow field separator plate of claim 10, wherein the conductive filler is graphite filler or carbon nanotubes.
- 12. The conductive flow field separator plate of claim 11, wherein the graphite filler is selected from the group consisting of graphite fibre 10 filler, graphite powder filler and mixtures thereof.
- 13. The conductive flow field separator plate of claim 9, wherein the poly(styrene-co-maleic anhydride) is poly(styrene-co-maleic anhydride).
- 14. The conductive flow field separator plate of claim 9, wherein the poly(styrene-co-maleic anhydride) contains from about 1% to about 15 75%, preferably from about 1% to 50%, most preferably from about 1% to about 32%, maleic anhydride moieties.
- 15. A method of making a conductive flow field separator plate having reduced resistivity, comprising the steps of:
 - 20 (a) blending a liquid crystal polymer, poly(styrene-co-maleic anhydride) and conductive filler together to form a blend; and
 - (b) moulding the blend to form the conductive flow field separator plate.
- 16. The method of claim 15, wherein step (a) comprising blending the 25 following components:
 - (a) from about 0.5 wt% to about 40 wt%, preferably from about 1 wt% to about 30 wt%, most preferably from about 5 wt% to about 20 wt%, of the liquid crystal polymer;
 - (b) from about 0.5 wt% to about 40 wt%, preferably from about 1 30 wt% to about 30 wt%, most preferably from about 5 wt% to about 20 wt% of the poly(styrene-co-maleic anhydride); and
 - (c) from about 20 wt% to about 99 wt%, preferably from about 60 wt% to about 98 wt%, most preferably from about 70 wt% to about 90 wt% of the conductive filler.
- 35 17. The method of claim 16, wherein the conductive flow field separator plate is formed by compression moulding, extrusion moulding or injection moulding.

18. The method of claim 16, wherein the liquid crystal polymer is liquid crystalline polyester.
19. The method of claim 16, wherein the conductive filler is graphite filler or carbon nanotubes.
- 5 20. The method of claim 19, wherein the graphite filler is selected from the group consisting of graphite fibre filler, graphite powder filler and mixtures thereof.
21. The method of claim 16, wherein the poly(styrene-co-maleic anhydride) is poly(styrene-co-maleic anhydride).
- 10 22. The method of claim 16, wherein the poly(styrene-co-maleic anhydride) contains from about 1% to about 75%, preferably from about 1% to 50%, most preferably from about 1% to about 32%, maleic anhydride moieties.